

CLAIMS

What is claimed is:

- 1 1. A method of providing content from a network to a wireless device, the method
2 comprising:
3 receiving the content from a resource on the network according to a
4 hypermedia protocol, wherein the wireless device is not compliant with the
5 hypermedia protocol; and
6 converting the content to a message compliant with a message requirement
7 of the wireless device.
- 1 2. A method as recited in claim 1, wherein said converting comprises generating
2 an SMS message including the content.
- 1 3. A method as recited in claim 2, further comprising transmitting the message to
2 an SMS Center (SMSC), for subsequent transmission by the SMSC to the wireless
3 device over a wireless network.
- 1 4. A method as recited in claim 3, wherein said converting further comprises
2 translating the content from a first content-type to a second content-type.
- 1 5. A method as recited in claim 4, wherein the first content-type is a mark-up
2 language, and the second content-type is plain text.

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1 6. A method as recited in claim 3, wherein said converting further comprises
2 transcoding the content from a first character set to a second character set.

1 7. A method as recited in claim 3, wherein said converting further comprises:
2 translating the content from a content-type used by the resource on the
3 network to a content-type used by the SMSC; and
4 transcoding the content from a character set used by the resource on the
5 network to a character set used by the SMSC.

1 8. A method as recited in claim 4, wherein the first content-type is a mark-up
2 language, and the second content-type is plain text.

1 9. A method as recited in claim 1, wherein said receiving the content from a
2 resource on the network is responsive to a request for the content from the
3 wireless device.

1 10. A method as recited in claim 9, wherein the request is an SMS request.

1 11. A method as recited in claim 10, further comprising, prior to said receiving the
2 content:

3 converting the request to be compliant with the hypermedia protocol; and
4 and transmitting the request to the resource on the network;

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1 12. A method as recited in claim 1, wherein said receiving the content from a
2 resource on the network is independent of any request from the wireless device.

1 13. A method of providing content from a network to a wireless device, the
2 method comprising:

3 receiving a message based on a request from the wireless device for
4 content;

5 identifying a keyword in the message;

6 mapping the keyword to a network resource;

7 retrieving the content from the network resource;

8 converting the content into a response compliant with a requirement of the
9 wireless device.

1 14. A method as recited in claim 13, wherein said mapping comprises using the
2 keyword to identify a URL of the network resource.

1 15. A method as recited in claim 13, further comprising maintaining a mapping of
2 keywords to network resources.

1 16. A method as recited in claim 15, wherein the keywords are associated with a
2 first character set used by the wireless device, and wherein the network resources
3 use a second character set not used by the wireless device.

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1 17. A method as recited in claim 13, further comprising converting the message to
2 comply with a communication requirement of the network resource prior to said
3 identifying.

1 18. A method as recited in claim 17, wherein said retrieving comprises retrieving
2 the content using a protocol used by the network resource but not by the wireless
3 device.

1 19. A method as recited in claim 17, wherein the protocol is a hypermedia based
2 protocol.

1 20. A method as recited in claim 19, wherein the message is an SMS message, and
2 the response is an SMS response.

1 21. A method as recited in claim 13, wherein said converting the content into a
2 response compliant with a requirement of the wireless device comprises:
3 translating the content from a content-type used by the network resource to
4 a content-type associated with the wireless device; and
5 transcoding the content from a character set used by the network resource
6 to a character set associated with the wireless device.

1 22. A method as recited in claim 21, wherein the message is an SMS message, and
2 the response is an SMS response.

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1 23. A method as recited in claim 13, further comprising converting the message to
2 comply with a requirement of the network resource prior to said identifying;

3 wherein said retrieving comprises retrieving the content using a protocol
4 used by the network resource but not by the wireless device; and

5 wherein said converting the content into a response compliant with a
6 requirement of the wireless device comprises transcoding the content into a
7 character set compliant with the requirement of the wireless device

1 24. A method as recited in claim 23, wherein the message is an SMS message, the
2 protocol is a hypermedia based protocol, and the response is an SMS response.

1 25. A method of providing content from a network to a wireless device, the
2 method comprising:

3 receiving a request for content from a message service center providing
4 message services to the wireless device;

5 generating a proxy request, the proxy request including an identifier
6 identifying a network resource capable of providing the content; and

7 converting the content to a message compliant to a message requirement of
8 the wireless device after the content is retrieved from the network resource, the
9 message for subsequent delivery by the message service center to the wireless
10 device.

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1 26. A method as recited in claim 25, wherein the request is an SMS request and
2 the message service center is an SMS Center (SMSC).

1 27. A method as recited in claim 26, wherein said generating a proxy request
2 comprises performing a hypermedia operation.

1 28. A method as recited in claim 27, wherein said generating a proxy request
2 comprises:

3 identifying a keyword associated with the request; and
4 mapping the keyword to an identifier of the network resource.

1 29. A method as recited in claim 28, further comprising maintaining a mapping of
2 keywords to network resource identifiers.

1 30. A method as recited in claim 25, wherein said converting comprises:

2 translating the content from a content-type used by the network resource to
3 a content-type used by the message service center; and

4 transcoding the content from a character set used by the network resource
5 to a character set used by the message service center.

1 31. A method of providing content from a network to a wireless device, the
2 method comprising:

3 receiving a message based on a request from the wireless device, the

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4 message conforming to a first protocol and a first character set implemented by
5 the wireless device;
6 transcoding the message into a second character set of the network;
7 identifying a keyword in the message;
8 mapping the keyword to a network resource on the network;
9 retrieving, from the network resource, content in the second character set
10 based on the keyword, using a second protocol implemented by the network;
11 translating the content from a content-type used by the application to a
12 content-type used by the wireless device;
13 transcoding the content into the first character set; and
14 providing the content to the wireless device in the first character set using
15 the first protocol.

1 32. A method as recited in claim 31, wherein:

2 the first protocol is SMS; and

3 the second protocol is a hypermedia based transport protocol.

1 33. A method as recited in claim 31, wherein:

2 the content-type used by the application is a mark-up language; and

3 the content-type used by the wireless device is plain text.

1 34. A method of providing content from a network to a wireless device, the

2 method comprising:

3 receiving a message based on a request from the wireless device;
4 identifying a keyword in the message;
5 mapping the keyword to a network resource;
6 retrieving content from the network resource based on the keyword;
7 translating the content into a content-type associated with the wireless
8 device; and
9 transcoding the content into a character set compliant with a message
10 requirement of the wireless device.

1 35. A method as recited in claim 34, further comprising providing the content to a
2 message center using said character set, for subsequent transmission to the
3 wireless device.

1 36. A method as recited in claim 34, wherein the message comprises an SMS
2 message.

1 37. A method as recited in claim 34, wherein said providing comprises providing
2 the content to the wireless device in an SMS response.

1 38. A method as recited in claim 34, wherein said mapping comprises mapping
2 the keyword to a URL associated with the network resource.

1 39. A method as recited in claim 34, wherein said retrieving comprises retrieving

2 the content using at least one HTTP transaction.

1 40. A method as recited in claim 39, wherein the HTTP transaction comprises an
2 HTTP POST operation.

1 41. A method of providing content from a network to a wireless device, the
2 method comprising:

3 maintaining a mapping of keywords to network resources;

4 receiving a first SMS message from the wireless device, the first SMS
5 message transmitted on a wireless network;

6 identifying a keyword in the first SMS message;

7 using the mapping to determine a network resource associated with the
8 keyword;

9 retrieving content from the network resource using an HTTP transaction;

10 translating the content into a different content type;

11 transcoding the content into a different character set; and

12 providing the content to an SMS Center in a second SMS message, for
13 transmission to the wireless device.

1 42. A method as recited in claim 41, wherein said using the mapping to determine
2 a network resource associated with the keyword comprises using the mapping to
3 determine a URL associated with the keyword.

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1 43. A method of providing content maintained remotely on a network to a
2 wireless device, the method comprising:
3 receiving an SMS request for the content from the wireless device via an
4 SMS Center (SMSC), the SMS request transmitted on a wireless network;
5 transcoding the SMS request from a plain text character set to a mark-up
6 language character set;
7 extracting a keyword from the transcoded request;
8 maintaining a keyword-to-URL mapping;
9 looking up the keyword in the keyword-to-URL mapping to identify a URL
10 associated with the keyword, the URL associated with an application capable of
11 providing said content;
12 constructing an HTTP POST operation containing the keyword and the
13 URL;
14 submitting the HTTP POST operation to the application over a wireline
15 network;
16 receiving an HTTP response from the application in response to the POST
17 operation over the wireline network, the HTTP response containing said content;
18 extracting the content from the HTTP response;
19 translating the content from a mark-up language to plain text;
20 transcoding the content from a character set of the application to a character
21 set of the SMSC; and
22 sending the translated and transcoded content in an SMS response to the
23 wireless device via the SMSC.

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1 44. A method as recited in claim 43, further comprising providing a Web site user
2 interface to allow updating of the keyword-to-URL mapping.

1 45. A method of providing content maintained remotely on a network to a
2 wireless device, the method comprising:

- 3 receiving an HTTP message containing the content from an application,
- 4 wherein the HTTP message is not in response to a request by the wireless device;
- 5 translating the content from a content-type used by the application to a
- 6 content-type used by the wireless device;
- 7 transcoding the content from a character set used by the application to a
- 8 character set used by the wireless device; and
- 9 sending an SMS message containing the translated and transcoded content
- 10 to an SMS center, for delivery to the wireless device.

1 46. A processing system coupled to a network and configured to provide content
2 from the network to a wireless device, the processing system comprising:

- 3 a processor; and
- 4 a storage facility coupled to the processor and containing instructions
- 5 executable by the processor which configure the processing system to
- 6 receive content from a resource on the network according to a
- 7 hypermedia protocol, wherein the wireless device is not compliant with the
- 8 hypermedia protocol; and

9 convert the content to a message compliant with a message
10 requirement of the wireless device.

1 47. A machine-readable program storage medium tangibly embodying a sequence
2 of instructions executable by a machine to perform a method comprising:
3 receiving a message based on a request from a wireless device;
4 identifying a keyword in the message;
5 mapping the keyword to a network resource on the network;
6 retrieving content from the network resource based on the keyword;
7 translating the content from a content-type of the application to a content-
8 type usable by the wireless device; and
9 transcoding the content into a character set compliant with a message
10 requirement of the wireless device.

1 48. A machine-readable program storage medium as recited in claim 47, wherein
2 the method further comprises providing the content to a message center using
3 said character set, for subsequent transmission to the wireless device.

1 49. A machine-readable program storage medium as recited in claim 47, wherein
2 the message comprises an SMS message.

1 50. A machine-readable program storage medium as recited in claim 47, wherein
2 said providing comprises providing the content to the wireless device in an SMS

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3 response.

1 51. A machine-readable program storage medium as recited in claim 47, wherein
2 said mapping comprises mapping the keyword to a URL associated with the
3 network resource.

1 52. A machine-readable program storage medium as recited in claim 47, wherein
2 said retrieving comprises retrieving the content using at least one HTTP
3 transaction.

1 53. A machine-readable program storage medium as recited in claim 52, wherein
2 the HTTP transaction comprises an HTTP POST operation.

1 54. An apparatus for providing content from a network to a wireless device, the
2 apparatus comprising:

3 means for receiving a message based on a request from the wireless device,
4 the message conforming to a first protocol and a first character set;

5 means for transcoding the message into a second character set;

6 means for identifying a keyword in the message;

7 means for mapping the keyword to a network resource;

8 means for retrieving, from the network resource, content in the second
9 character set based on the keyword, using a second protocol;

10 means for translating the content from a content-type of the application to a

11 content-type usable by the wireless device;

12 means for transcoding the content into the first character set; and

13 means for providing the content to the wireless device in the first character
14 set using the first protocol.

1 55. An apparatus for providing content maintained remotely on a network to a
2 wireless device, the apparatus comprising:

3 means for receiving an SMS request for the content from the wireless device
4 via an SMS center, the SMS request transmitted on a wireless network;

5 means for transcoding the SMS request from a first character set to a second
6 language character set;

7 means for extracting a keyword from the transcoded request;

8 means for maintaining a keyword-to-URL mapping;

9 means for looking up the keyword in the keyword-to-URL mapping to
10 identify a URL associated with the keyword, the URL associated with an
11 application capable of providing said content;

12 means for constructing an HTTP POST operation containing the keyword
13 and the URL;

14 means for submitting the HTTP POST operation to the application over a
15 wireline network;

16 means for receiving an HTTP response from the application in response to
17 the POST operation over the wireline network, the HTTP response containing said
18 content;

- 19 means for extracting the content from the HTTP response;
- 20 means for translating the content from a content-type of the application to a
- 21 content-type usable by the SMSC;
- 22 means for transcoding the content from the second character set the first
- 23 character set; and
- 24 means for sending the transcoded content in an SMS response to the
- 25 wireless device via the SMSC.

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